

DETAILED ACTION

Specification

1. The amendment to the specification that was received on 28 April 2008 is acknowledged and accepted.

Election/Restrictions

2. Claims 1, 2, 11-20 and 33-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group 1, Species 1, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 28 April 2008. Further, claims 1, 2, 11-20 and 33-43 have been canceled by the amendment filed 28 April 2008.
3. Generic claim 45 is allowable. The restriction requirement between Group 1, Species 1 and Group 2, Species 2, as set forth in the Office action mailed on 28 January 2008, has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Claim 46, directed to Group 1, Species 1 is no longer withdrawn from consideration because the claim(s) requires all the limitations of an allowable generic claim.

In view of the above noted rejoinder of claim 46 directed to Group 1, Species 1, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present

application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Response to Arguments

4. The amendment to claim 22 overcomes the 35 USC 112, 2nd paragraph rejection for having insufficient antecedent basis. Therefore, the rejection is withdrawn.

Allowable Subject Matter

5. Claims 3-5,7-10,21-23,25-32,44-49 and 51 are allowed.

6. The following is an examiner's statement of reasons for allowance: As stated in the Office Action dated 28 January 2008, independent claim 7 is allowable because, "In a CMOS active pixel sensor (APS) having plural photosensors, starting to read a second photosensor charge into a floating diffusion area while reading out a first photosensor charge from said floating diffusion area, i.e. while row select transistor remains on, could not be found in the prior art".

Independent claims 3 and 10 are directed toward accumulating, storing and transferring charge in a CMOS APS. Claims 3 and 10 require the limitation that the transferring steps occur on half clock cycles. Prior art could not be found to satisfy this limitation. The closest art reference found is US Pub. No. 2007/0285545 filed by Hsieh.

Hsieh discloses a very similar pixel structure to applicant's pixel structure, e.g. Hsieh Figure 4 corresponds to applicant's Figure 2 and Hsieh Figure 6 corresponds to applicant's Figure 4. Hsieh also discloses transferring on half clock cycles (refer to Figure 7). However, Hsieh was filed 17 August 2007 as a CIP application of application Nos. 10/229,953 and 10/229,955 filed 27 August 2002. However, the transferring on half clock cycles feature was not disclosed in parent application Nos. 10/229,953 and 10/229,955. Therefore, this feature of Hsieh is not afforded the earlier date of 27 August 2002 and thus, does not qualify as prior art.

Independent claims 21, 30, 44 and 45 are also directed toward accumulating, storing and transferring charge in a CMOS APS. Claims 21, 30, 44 and 45 require at least one barrier region separating a photosensor from a storage node *controlled by a transistor in the pixel*. While barrier regions are common in integrated CMOS circuits, this feature (separating a photosensor from a storage node and controlled by a transistor in the pixel) could not be found in the prior art and is therefore allowable.

The following references are also relevant:

US Patent No. 7,332,786 (commonly assigned with the same inventors)

US Pub. No. 2005/0110093 (commonly assigned with the same inventors)

US Pub. No. 2007/0018267 (commonly assigned with the same inventors)

These references were reviewed for double patenting and were found to claim similar but distinct subject matter. For example, US Patent No. 7,332,786 and US Pub. No. 2005/0110093 are directed toward anti-blooming circuitry and transfer charge to a storage node when a photosensor saturates.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD M. BEMBEN whose telephone number is (571)272-7634. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David L. Ometz/
Supervisory Patent Examiner, Art
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